

## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments with respect to the newly amended claims have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1-5 and 7-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Lieber et al. (WO 03/005450 A2) in view of Ito, Hiroshi (Journal of Photopolymer Science and Technology; Vol.11 , No.3(1998)pp.379-393) and Goldberg et al. (US 5,503,698).**

**Regarding claims 1,7-12 12 and 16, Lieber discloses a method of orienting an electronic functional material, the method comprising:**

a mixed material preparation step of preparing a mixed material from an electronic functional material and a matrix material used for orientating the electronic functional material; an orientation step of orientating the mixed material; and a matrix

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material removal step of removing the matrix material from the mixed material which has been oriented (*Lieber et al. page 108 lines 7-14 and additionally see 371 documents filed 5/10/2006 titled "Translation of Reply." In the translated 371 document Applicant's admit that Lieber discloses the claimed limitations however is silent upon wherein, in the matrix material removal step, the matrix material is removed by at least either heating or etching. )*

Lieber is silent upon a specific polymeric matrix material, and specific process steps describing the disclosed removal. Due to the non-disclosure of a neither specific material nor means for removal, it would be expected that an artisan would select a conventionally known polymeric matrix material and select conventional means to remove it.

At the time of the invention poly(phthalaldehyde) [PPA] was a well known polymeric matrix material which decomposes/monomerizes/depolymerizes upon heating or irradiating (see Goldberg et al. Abstract, Col. 2 lines 35-46, Col. 4 lines 9-20). Furthermore as disclosed in Ito, PPA is a notoriously well known resist material used of deep UV photolithography (see Ito §[3.1]). As disclosed by Ito this known polymeric matrix material depolymerizes (monomerize) upon exposure to ultraviolet radiation . The depolymerized PPA can then be removed by an acid rinse (etching).

It has been held to be within the general skill of a worker in the art to select a known material on the base of its suitability, for its intended use involves only ordinary skill in the art. *In re Leshin*, 125 USPQ 416. Therefore it would be obvious to one of ordinary

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skill in the art at the time of the invention to select a known material and appropriate means to achieve the disclosed steps and results of orientating a electronic functional material with a polymeric matrix material and subsequently removing the polymeric matrix material.

**Regarding claim 2,** Lieber in view of Ito and Goldberg et al. disclose the method of orienting an electronic functional material according to claim 1, wherein the electronic functional material contains an organic semiconductor compound (Lieber, ¶[0221]).

**Regarding claim 3,** Lieber in view of Ito and Goldberg et al. disclose the method of orienting an electronic functional material according to claim 1, wherein the electronic functional material contains nanotubes (Lieber, ¶[0221]).

**Regarding claim 4,** Lieber in view of Ito and Goldberg et al. disclose the method of orienting an electronic functional material according to claim 1, wherein the mixed material preparation step includes a mixed material layer formation step of forming a mixed material layer containing the mixed material (Lieber, ¶[0221]).

**Regarding claim 5,** Lieber in view of Ito and Goldberg et al. disclose the method of orienting an electronic functional material according to claim 1, wherein, in the orientation step, the mixed material is oriented by at least either drawing or shear deformation (Lieber, ¶[0008]).

**Regarding claim 13,** Lieber in view of Ito and Goldberg et al. disclose the method of orienting an electronic functional material according to claim 2, wherein the organic semiconductor compound is selected from the group consisting of pentacene, tetracene, thiophene oligomer derivatives, phenylene derivatives, phthalocyanine compounds, polyacetylene derivatives, polythiophene derivatives and cyanine dye (Lieber, ¶[0221]).

**Regarding claim 14,** Lieber in view of Ito and Goldberg et al. disclose the method of orienting an electronic functional material according to claim 1, wherein, in the orientation step, the mixed material is oriented by liquid crystal orientation (*Orienting a material in a polymetric material matrix is the implicit basis of how LCD orientation works, therefore the process of disclosed by Lieber meets the limitation*).

**Regarding claim 15,** Lieber in view of Ito and Goldberg et al. disclose the method of orienting an electronic functional material according to claim 1, wherein, in the matrix material removal step, the matrix material is removed through sublimation (see Goldberg et al. Abstract, Col. 2 lines 35-46, Col. 4 lines 9-20 and Ito §[3.1] – Convention implicit means of removing PPA).

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JARRETT J. STARK whose telephone number is (571)272-6005. The examiner can normally be reached on Monday - Thursday 7:00AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Smith can be reached on (571) 272-1907. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/Jarrett J Stark/  
Examiner, Art Unit 2823

10/22/2009  
/J. J. S./  
Examiner, Art Unit 2823